

Sociology

Importance and Consequences of Sociological and Ethical Factors in the Fight Against Doping

Teimuraz Ukleba^{*}, Ramaz Shengelia^{**}, Nino Durglishvili[§]

^{*} Faculty of the Physical Education and Rehabilitation, Georgian State Teaching University of Physical Education and Sport, Tbilisi, Georgia

^{**} Academy Member, Department of Medical History and Bioethics, Tbilisi Medical State University, Tbilisi, Georgia

[§] Faculty of Social and Political Sciences, Ivane Javakhishvili Tbilisi State University, Tbilisi Georgia

The problem of doping is indeed a very acute and rapidly growing global problem. One of significant components of fight against dope in sports is implementation of the primary preventive measures. The interventions, in a form of educational programs should be oriented towards the athletes and their support personnel. Certainly, such programs require quite serious research support, with respect of both, their development and assessment of their effectiveness. The paper is based on a quantitative study: Development and implementation of the ethical education program for young athletes in order to combat doping, conducted in 2019-2020 using the questionnaire of World Anti-doping Agency: Social Science Research Package for Anti-Doping Organizations. The research target group included the national sports federations that have made the cooperation agreements with Anti-doping agency of Georgia. Sampling framework was database of the members provided by the mentioned sports federations that included contact information of each member. The survey was conducted in two waves: initially 215 athletes were surveyed (*first wave*). After completion of the training conducted in accordance to World Anti-Doping Agency (WADA) educational resources, they were surveyed again, based on the same questionnaire (*second wave*). 200 respondents participated in both waves and this provides 7% error and 95% guarantee. Certification variable included the athletic disciplines, classified in two categories: team sports and individual sports. At the first stage of selection the proportional distribution into the strata was provided. Selection of the respondents was provided by PPS method. Based on the research results, we can conclude that the anti-doping education and awareness of athletes is very important for formation of their anti-doping attitudes. © 2023 Bull. Georg. Natl. Acad. Sci.

sports medicine, doping, sociology, ethics

Specific characteristic of the sports – necessity of contest – directly and significantly influence moral-ethical formation of the athletes. One of the moral-ethical problems that is particularly acute in contemporary sports, is the problem of doping. In addition to the harm to the athletes' somatic health, doping contributes to creating of unfair competitive

environment. Undeserved award ruins the individual's moral, undermines the moral and ethical foundation of sports. Hence, in the past decade, in many countries all over the world, the issue of doping became subject of extensive research: in sports, with respect of doping problem, social sciences allow discussion of the goals of con-

sumption of prohibited substances, gain in-depth understanding of the essence of this problem, which fit scientifically grounded solution [1]. Aspects of social psychology in complex understanding of doping consumption in sports acquire decisive importance and this is demonstrated by the recent empiric studies, usually considered together with prevention programming. Formation and development of self-control and self-regulation skills is the effective way for preventing dope in sports. Survey of 410 young Australian athletes showed that high self-control positively affects the intentions to use of dope and attitude to it, while the intentions and attitudes of the athletes with lower self-control were higher [2]. The mentioned studies deal with the psycho-social correlations and forecasting extent of doping in sports, awareness of the athletes (adolescents, elite and competitive), attitude, beliefs and behavior in relation to doping, effectiveness of anti-doping education programs and specific doping-related models and theories [3-5]. Synthesis of the new, mixed studies allow the researchers, policymakers and practitioners in this sphere to thoroughly consider the processes [6]. There were conducted only few studies in this sphere, to present anti-doping education program outcomes or to develop anti-doping theory / model [7]. One of the significant components of fight against dope in sports is implementation of the primary preventive measures. The interventions, in a form of awareness programs should be oriented towards the athletes and their accompanying personnel. Conducted study on doping awareness, attitude to doping and actual preventive measures showed that: 89.9% of all coaches have already thought about doping and they mentioned that discussions about doping is part of their daily training of the athletes (52%). In the coaches' opinion, informing of the athletes about doping should commence in the age from 10 to 15 (40.2%). Only 24.6% of the athletes make active attempts to get information, the athletes regard that awareness

activities for them, coaches and physicians should be further expanded.

As significant finding of the study we regard the fact that irrespective of education about potential risks to the athletes' health does not reduce consumption of the prohibited substances [8].

German athletes, who have received additional education in a form of "additional classes" in the scopes of the National Plan for Doping Prevention, had much more knowledge about doping, compared with the athletes who have not received such education but this has not impacted their actual behavior [9].

Key measures against dope in sports include financial and social sanctions for anti-doping rules by the athletes, as well as their disqualification. Survey of Danish elite athletes showed that 67 of the questioned athletes regard that social sanctions are greater preventing factor than disqualification [10].

Athletes regarding that the moral is the key for their self-esteem, tend to consume less prohibited substances, due to low acceptance of amorality and strong sense of guilt [11].

In survey conducted in 2019, most athletes emphasized lack of awareness in doping-related issues. Some of them stated that the psychologist or coach uses to mention doping only briefly. Most athletes agreed that not only athletes should be involved in anti-doping awareness measures but also the parents, coaches and physicians. The athletes expressed their opinion that there is need of short and frequent awareness programs [12]. The athletes who received anti-doping education more than once, have more accurate knowledge, compared with those, who are less informed and this, in turn, emphasizes significance of permanent education [13]. Scottish elite athletes completed the questionnaire (N=177) studying attitude to consumption of preparations improving sports achievements, directions to achieve the goal and perception of the motivation climate. The survey showed that the individual and situational factors

operate as both, protecting and risk factors, with regard of dope in sports [14]. Qualitative study of Greek and Australian athletes and coaches showed number of factors impacting the athletes' anti-doping attitudes. There were identified five key factors: influence of the peers, influence of the coaches, doping stance, so called "doping stigma" and culture of surrounding. Key factor forming anti-doping attitudes is formation and development of anti-doping culture among the athletes. Analysis of the data from recent studies provides basis to offer that it is necessary to involve the society into anti-doping education [15-17]. Analysis of two questionnaires completed by 883 parents of young Australian athletes revealed that male parents demonstrated significantly better knowledge about doping and its side effects and were more likely to be influenced by their own sporting careers and amounts of sports activities per week. Parental sex did not demonstrate a significant influence on responses reflecting attitudes toward doping [18]. The indirect attitude measurement procedures as for example the implicit association test (IAT) showed the fact that the boundaries between (legal) supplements and (illegal) doping substances have been shifted from time to time so that athletes were not sure whether substances were legal or not. [19, 20]. Gillick competence (Children under the age of 16 can consent to their own treatment if they're believed to have enough intelligence, competence and understanding to fully appreciate what's involved in their treatment.) ought not, therefore, to be viewed as a precedent for pediatric or adolescent consent to doping and that the "weak" or "soft" paternalistic prevention of doping is justified [21]. The initial evidence of validity of the PE-IAT method to capture undeclared attitudes to doping and predict behaviors is promising but also indicates a need for improvement to the protocol and stimulus material. Self-reports on behaviors and social cognitive measures could be affected by some form of response bias. This can question the validity of self-reports, with reliability remaining

unaffected. Triangulation of various assessment methods is recommended [22, 23].

Problem significance and scientific novelty of the study. Doping problem is indeed very acute and rapidly growing problem at international level and this increasingly causes the interest to anti-doping and preventive programs. Fair play implies the conception of friendship, respect to the others and necessity of complying with the norms of moral. It is defined as the worldview system, rather than the way of single action only. This unambiguously exclude the problems related to deception, untruthfulness, doping, physical and psychological violence. Significance of doping issues at the national level can be evidenced by the particular attention of the state to this problem. Namely, in the alignment of anti-doping legislation with the World Anti-Doping Code by Georgian Parliament.

The current situation gave rise to the need to create educational anti-doping programs, which involves raising awareness in the ethics of sports behavior and is aimed at the self-conscious prevention of doping use, because only a complex approach will allow us to defeat the doping epidemic in big sports. Such programs, obviously, need quite serious research support both in terms of development and evaluation of their effectiveness. However, at the national level, there is still a shortage of relevant studies, which further emphasizes the relevance of the presented work, which, through the identification of the importance of anti-doping education and awareness raising, aims to provide scientific-research support for the formation of anti-doping attitude among Georgian athletes.

Research methodology. The article is based on a quantitative study conducted in 2012-2020 by using the questionnaire of World Anti-doping Agency: Social Science Research Package for Anti-Doping Organizations. The research target group included the national sports federations that have made the cooperation agreements with Anti-doping Agency

of Georgia. Sampling framework was database of the members provided by the mentioned sports federations that included contact information of each member. The survey was conducted in two waves: initially 215 athletes were surveyed (*first wave*).

Athletes participating in the first wave of the survey completed anti-doping training in accordance with WADA educational resources. After completion of the training conducted, they were surveyed again, based on the same questionnaire (*second wave*).

Second wave of the survey included only those respondents, who have fully completed the training and gave their informed consent to participation in the final stage. If any of these trained respondents refused to participate in the second wave of the survey, the relevant information of these respondents was removed from the first wave database as well. (15 cases in aggregate). 200 respondents participated in both waves and this provides 7% error and 95% guarantee. Certification variable included the athletic disciplines, classified in two categories: team sports and individual sports. At the first stage of selection the proportional distribution into the strata was provided. Selection of the respondents was provided by PPS method. Most athletes (68.3%) have 5-year (or season) or greater experience of competing in their main sports. Level of the competitions, where they participated is high as well – 30.7% of the athletes stated that they have participated in the world championship events and 3.3% of them have the experience of participating in the Olympic Games. The research was oriented, on the one hand, towards study the doping climate in Georgia and identification common latent factors that have had significant positive impact on improvement of the athletes' awareness, and on the other hand, on evaluating the effect of the training by developing a unified index (Training Effectiveness Index). Initially, by the method of the contrast of means, there were identified all variables that have statistically significant differences between the 1st

and 2nd waves. In aggregate, there were identified twenty such variables, which were subjected to factor analysis and they were reduced to six general factors (variables). Regarding the contents of the variables included into these factors, we named them as follows: “harmful effect of short-term consumption of the prohibited substances”, “fraud motivations”, “fairness of hearing”, “mechanisms of fairness and responsibility related to testing”, “belief in concealing of the prohibited substances’ consumption”, “factor of testing of human growth hormone”. First factor (“harmful effect of short-term consumption of the prohibited substances”) includes six variables: assessment of harm to the health caused by short-term (up to two months) consumption of anabolic steroids, design steroids (such as tetrahydrogestinone, erythropoietin (EPO) and other similar substances), human growth hormone, diuretics and design steroids (e.g. tetrahydrogestinone). The athletes evaluated the degree of harm to their health that could be caused by consumption of the mentioned substances for short period, say up to two months, in their opinion, based on four-point scale (from 1 – “no harm at all” to 4 – “severe harm”). Second factor (“fraud motivations”) includes three variables: “I would cheat, if this yields me victory”; “if others cheat, I could do the same”; “I would cheat, if this helped me or my team”. The athletes evaluated whether they agree or not with these statements based on five-point scale (from 1 – “I don’t agree at all”; to 5 – “I agree fully”). Third factor (“fairness of hearing”) integrates three variables: “How satisfied are you that the athletes who have appealed against undesired outcome had opportunity of fair hearing?” “How satisfied are you that the athletes in your sports that had undesirable outcome, will have the opportunity of fair hearing before the punishment is imposed?” and “How satisfied are you that the athletes who have appealed against undesirable outcome would have fair hearing at sports arbitration?” Evaluation was based on four-point scale (from 1 – “very satisfied”; to 4 – “very unsatis-

ried”). Fourth factor (“mechanism of fairness and responsibility in relation with testing”) included the following: “do you know or have you ever heard, whether the punishment in case of positive test is severe or light?” (Measurement was provided on the basis of four-point scale: from 1 – “very severe”; to 4 – “very light”); “Is Georgian Anti-Doping Agency equally fair to all athletes?” (Measurement was provided on the basis of four-point scale: from 1 – “very fair”; to 4 – “very

sis showed, the statistically significant difference between the waves is conditioned by the first five factors. Hence, the sixth factor, significance level (Sig.) = 0.816 was withdrawn from further analysis (sixth factor did not participate in formation of the index). In addition, it should be noted that share of each factor of the first five ones is quite high and the fifth factor (“belief in concealing of the prohibited substance consumption”), had the weight higher than the other ones:

Table. Significance levels and weights of factors (results of logistic regression)

Factors	Sig.	Exp(B)
Belief in concealing of the prohibited substances consumption	.000	1.64
Mechanisms of fairness and responsibility related to testing	.001	1.45
Fairness of hearing	.001	1.45
Fraud motivations	.002	1.40
Harmful effect of the short-term consumption of the prohibited substances	.004	1.38
Human growth hormone	.816	

unfair”); “How well Georgian Anti-Doping Agency complies with the testing procedures (such as sampling and protection)?” (Measurement was provided on the basis of four-point scale: from 1 – “fully complies”; to 4 – “does not comply at all”). Fifth factor (“believe in concealing of the prohibited substances consumption”) included: “If you receive the prohibited substance in the period of competition, in case of concealing attempt, how probable is that no one understands anything?” and “If you receive the prohibited substance in the period when there is no competition, in case of concealing attempt, how probable is that no one understands anything?” (Measurement was provided on the basis of four-point scale: from 1 – “very probable”; to 4 – “impossible”). Sixth factor is represented with the single variable, the athletes had to assess, how accurately, in their opinion, it is possible to detect human growth hormone by testing. Evaluation was provided based on five-point scale (from 1 – “very accurately” to 5 – “absolutely inaccurately”). As logistic regressive analy-

At the following stage of index formation, based on main components method, multiple use of the factor analysis, five new factors were developed. Only the variables that got high weights in the relevant factor, resulting from initial factor analysis participated in formation of each of them. And on the basis of the new factors, applying the same method, single general factor was formed, which, due to maximal dispersion, is the best variant of replacement of the mentioned five factors with the single one. Obtaining of one, general factor, in turn, allowed introduction of general index. Namely, the factor was normalized between zero and one, via linear transformation, so that to the factor’s minimal value corresponds the minimal value of index (0) and maximal value – to the maximal index (1). Based on the index, according to the difference between the first (0.45) and second (0.58) waves that is statistically significant (Sig.=0.000), effectiveness of the training was assessed. In particular, difference between them was 0.13. Given that this figure is almost one third (28.7%) of the first wave

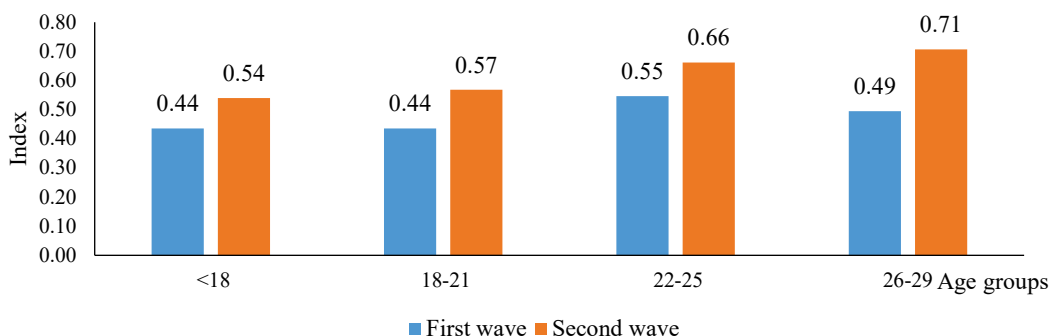


Figure. Training Effectiveness Index by Age Groups.

value, we can regard that the training was quite effective. According to the index, training is effective for the athletes with experience of contests at international and national levels (in both cases the difference is statistically significant) and for those, still competing at the city/district level, difference between the waves is not statistically significant and this can be regarded as lower effectiveness of training for the athletes of such categories. Training is effective in both, team and individual sports. In both cases, the difference is statistically significant. In addition, it should be noted that in team sports the difference (0.14) is greater, compared with the individual sports (0.10). Training is effective for the age groups from 18 to 29 (difference is statistically significant). For the athletes who are 30 or older, the difference is not statistically significant. It should be mentioned that with respect of effectiveness, age group from 26 to

29 is drastically distinguished. This can be explained by the fact that age of 26-29 for the athletes is the age of the highest physical fitness, experience, psychological stability, the desire of maximal achievements. Hence, the athletes attempt to thoroughly understand and deal with any nuances hindering high sports achievements, among them, possible outcomes of unintentional or intentional violation of anti-doping regulations.

Finally, based on the research results, we can conclude that the awareness is very important for formation of anti-doping attitude in the athletes. In developing the relevant programs, it is recommended to consider the role and specific nature of the factors that significantly affect improvement of awareness, with the due regard of characteristics of different groups of athletes (age, experience of contests, sports etc.).

სოციოლოგია

სოციოლოგიური და ეთიკური ფაქტორების მნიშვნელობა და შედეგები დოპინგის გამოყენებასთან ბრძოლაში

თ. უკლება*, რ. შენგელია**, ნ. დურგლიშვილი§

*საქართველოს ფიზიკური აღზრდისა და სპორტის სახელმწიფო სასწავლო უნივერსიტეტი, ფიზიკური აღზრდისა და რეაბილიტაციის ფაკულტეტი, თბილისი, საქართველო

**აკადემიის წევრი, თბილისის სახელმწიფო სამედიცინო უნივერსიტეტი, სამედიცინო ისტორიისა და ბიოეთიკის კათედრა, თბილისი, საქართველო

§ივანე ჯავახიშვილის სახ. თბილისის სახელმწიფო უნივერსიტეტი, სოციალურ და პოლიტიკურ მეცნიერებათა ფაკულტეტი, თბილისი, საქართველო

სპორტსმენების მიერ დოპინგის გამოყენება მწვავე და სწრაფად მზარდი გლობალური პრობლემაა, რომლის წინააღმდეგ ბრძოლის ერთ-ერთი მნიშვნელოვანი კომპონენტია პირველადი პრევენციული ღონისძიებების განხორციელება. ინტერვენციები, საგანმანათლებლო პროგრამების სახით, ორიენტირებული უნდა იყოს სპორტსმენებსა და მათ დამხმარე პერსონალზე, რაც მოითხოვს საკმაოდ სერიოზულ კვლევით მხარდაჭერას, მათი განვითარებისა და ეფექტურობის შეფასების თვალსაზრისით. ნაშრომი ეფუძნება რაოდენობრივ კვლევას: „ახალგაზრდა სპორტსმენების ეთიკური განათლების პროგრამის შემუშავება და განხორციელება, დოპინგთან ბრძოლის მიზნით“, რომელიც ჩატარდა 2019-2020 წლებში მსოფლიო ანტიდოპინგური სააგენტოს კითხვარის გამოყენებით – “სოციალური მეცნიერების კვლევის პაკეტი ანტიდოპინგური ორგანიზაციებისთვის”. კვლევის სამიზნე ჯგუფს წარმოადგენდა ის ეროვნული სპორტული ფედერაციები, რომლებსაც საქართველოს ანტიდოპინგური სააგენტოსთან ურთიერთ-თანამშრომლობის ხელშეკრულება ჰქონდათ გაფორმებული. შერჩევის ჩარჩოს წარმოადგენდა აღნიშნული ეროვნული სპორტული ფედერაციების მიერ მოწოდებული წევრების ელექტრონული ბაზა, რომელიც მოიცავდა საკონტაქტო ინფორმაციას თითოეული წევრის შესახებ. გამოკითხვა ჩატარდა ორ ტალღად: თავდაპირველად გამოიკითხა 215 სპორტსმენი (პირველი ტალღა). მსოფლიო ანტი-დოპინგური სააგენტოს საგანმანათლებლო რესურსის შესაბამისად ჩატარებული ტრენინგის დასრულების შემდეგ, ისინი კვლავ გამოიკვლიეს იმავე კითხვარის საფუძველზე (მეორე ტალღა). ორივე ტალღაში მონაწილეობდა – 200 რესპოდენტი, რაც უზრუნველყოფდა კვლევის შედეგების 7%-იან ცდომილებას 95%-იანი გარანტიით. სტრატეგიცირების ცვლადს წარმოადგენს სპორტის სახეობა, რომელიც განისაზღვრა ორი კატეგორიით, სათამაშო და ინდივიდუალური სპორტი. შერჩევის პირველ ეტაპზე მოხდა პროპორციული გადანაწილება სტრატეგებში. უშუალოდ, რესპოდენტების შერჩევა განხორციელდა PPS-მეთოდით. კვლევის შედეგებიდან გამომდინარე, შეგვიძლია დავასკვნათ, რომ სპორტსმენების ანტიდოპინგური განათლება და ცნობიერება ძალზე მნიშვნელოვანია მათი ანტიდოპინგური დამოკიდებულების ჩამოყალიბებისთვის.

REFERENCES

1. Erickson K., McKenna J., Backhouse S.H. (2015) A qualitative analysis of the factors that protect athletes against doping in sport. *Psychology of Sport and Exercise*, **16**(2): 149-155. doi: <http://dx.doi.org/10.1016/j.psychsport.2014.03.007> ort.2014.03.00
2. Chan D.K.C., Hardcastle S.J., Lentillon-Kaestner V., Donovan R.J., Dimmock J.A., Hagger M.S. (2014) Athletes' beliefs about and attitudes towards taking banned performance-enhancing substances: a qualitative study. *Sport, Exercise, and Performance Psychology*, **3**(4): 241–257.
3. Johnson J., Butryn T., Masucci M.A. (2013). A focus group analysis of the US and Canadian female triathletes' knowledge of doping. *Sport in Society*, **16**(5): 654-671.
4. Gucciardi D.F., Jalleh, G., Donovan R.J. (2010) Does social desirability influence the relationship between doping attitude and doping susceptibility in athletes? *Psychology of Sport and Exercise*, **11**: 479 – 486.
5. Petroczi A., Aidman E. V. (2009) Measuring explicit attitude toward doping: review of the psychometric properties of the performance enhancement attitude scale. *Psychology of Sport and Exercise*, **10**: 390-396.
6. Erikson K. (2017) Blowing the whistle on doping in sport through evidence-informed policy making (WADA-AMA. org).
7. Donovan R.J., Jalleh, G., Gucciardi D.F. (2014) Using the Sport Drug Control Model to review the social science research on doping and identify areas for future research. Report submitted to WADA Education Committee and Social Science Research Ad Hoc Sub-Committee. Canada.
8. Peters C., Schulz T., Oberhoffer R. Michna H. (2009) Doping and doping prevention: knowledge, attitudes and expectations of athletes and coaches. *Deutsche Zeitschrift Fur Sportmedizin*, **60**(3): 73–78.
9. Wippert P. A., Fließer M. (2016) National doping prevention guidelines: Intent, efficacy and lessons learned – A 4-year evaluation. *Substance Abuse Treatment, Prevention, and Policy*, **11**(35): 42. doi: 10.1186/s13011-016-0079-9
10. Overbye M., Elbe A.M., Knudsen M.L., Gertrud Pfister (2014) Athletes' perceptions of anti-doping sanctions: the ban from sport versus social, financial and self-imposed sanctions, pp. 364-384 | Published online: 21 Nov. 2014.
11. Kavussanu M., Ring C. (2017) Moral identity predicts doping likelihood via moral disengagement and anticipated guilt. *Journal of Sport and Exercise Psychology*, **39**(4): 293–301. doi: 10.1123/jsep.2016-0333
12. Hallward L., Duncan L. R. (2019) A qualitative exploration of athletes' past experiences with doping prevention education. *Journal of Applied Sport Psychology*, **31**(2): 187–202. <https://doi.org/10.1080/10.1080/10.413200.2018.1448017>
13. Murofushi Y., Kawata Y., Kamimura A. Hiroswawa M. Shibata N. (2018) Impact of anti-doping education and doping control experience on anti-doping knowledge in Japanese University athletes: a cross-sectional study. *Substance Abuse Treatment, Prevention, and Policy*, **13**(1), article number 44: 1-15. <https://doi.org/10.1186/s13011-018-0178-x>
14. Allen J., Taylor J., Dimeo P., Dixon S., Robinson L. (2015) Predicting elite Scottish athletes' attitudes towards doping: examining the contribution of achievement goals and motivational climate. *Journal of Sports Sciences*, **33**(9):899-906. doi: 10.1080/02640414.2014.976588.
15. Barkoukis V., Brooke L., Ntoumanis N., Smith B. & Gucciardi D. F. (2019) The role of the athletes' entourage on attitudes to doping. *Journal of Sports Sciences*, **37**(21): 2483–2491. doi: 10.1080/02640414.2019.1643648
16. Backhouse S., McKenna J., Patterson L. (2009) Prevention through education: a review of current international social science literature. Canada: World Anti Doping Agency.
17. Backhouse S., McKenna J., Robinson S., Atkin A. (2007) Attitudes, behaviours, knowledge and education - drugs in sport: past, present and future. Leeds Metropolitan University Carnegie Research Institute, Prepared for World Anti-Doping Agency.
18. Blank C., Leichtfried V., Schaiter R., Furchapter C., Muller, D., Schobersberger W. (2013) Doping in sports: knowledge and attitudes among parents of Austrian junior athletes. *Scandinavian Journal of Medicine and Science in Sports*, **25**(1): 116-124. doi:10.1111/sms.12168
19. Brand R., Melzer M. (2011) DopingEinstellungenmessungen [Measuring Doping attitudes]. *Doping*, **2**(1): 46-49.
20. Brand R., Melzer M., Hagemann N. (2011) Towards an implicit association test (IAT) for measuring doping attitudes in sports. Data based recommendations developed from two recently published tests. *Psychology of Sport and Exercise*, **12**: 250 – 256.
21. McNamee M.J. (2009) Beyond consent: the ethics of pediatric doping. *Journal of the Philosophy of Sport*, **36**:111–126.
22. Petroczi A., Aidman E., Nepusz T. (2008) Capturing doping attitudes by self-report declarations and implicit assessment: a methodology study. *Substance Abuse Treatment, Prevention, and Policy* **9**: 1-12.
23. Petroczi A., Uvacek M., Nepusz T., Deshmukh N., Shah I., Aidman, E. V., Barker J., Tóth M., Naughton D. P. (2011) Incongruence in doping related attitudes, belief and opinions in the context of discordant behavioural data: In which measures do we trust? *PloS One*, **6** (4): e 18804.

Received December, 2022